HOSPITALIZED BURN INJURY CASES IN INDONESIA

Suparnadi Praptasuganda*

ABSTRAK

Laporan penderita masuk rumah sakit selama 7 hari tahun 1980 - 1983 yang dikirim 2x/tahun ke Depkes dipakai untuk menghitung jumlah kasus luka bakar setahun yang dirawat di rumah sakit di Indonesia. Ada 7741 kasus/tahun dengan case fatality rate rata-rata 7,8%. Penderita laki-laki lebih banyak daripada perempuan 1.7 : 1). Golongan umur 0 - 5 tahun perlu mendapat perhatian khusus oleh karena jumlah yang dirawat 2x lebih banyak daripada rata-rata untuk semua golongan umur. Lama tinggal rata-rata di rumah sakit adalah 13 hari. Disarankan untuk melakukan penelitian yang mempelajari sebab terjadinya luka bakar, penelitian perbandingan angka kematian penderita luka bakar di berbagai rumah sakit dan penelitian dalam masyarakat untuk melengkapi data rumah sakit.

INTRODUCTION

Burn injuries belong to unintentional injury that could be prevented. In order to develop appropriate measures for prevention, a good understanding is needed about the epidemiology of burn injuries. Very few epidemiological studies have been done and published in this country. This study will describe some factors related to hospitalized cases of burn injury in Indonesia.

MATERIALS AND METHODS

This study looked into data of burn injury cases from hospital admission reports, which is sent twice a year to the Medical Care Information Division of the Ministry of Health (MOH) in Jakarta. Each year, the recording period for these reports were between Jan 1 — 7 and July 1 — 7. The data collected were from 1980 — 1983. For those years reporting compliance was more than 88%, coming from about 650 hospitals in Indonesia. About half of this number were government hospitals (provincal and central) including those that belong to the armed forces.

The period between 1980 and 1983 was selected because a new reporting system was introduced in 1984. Among the changes that was introduced, the new system requires 4 times a year hospital Reporting respectively in February, August and November. Apparently for some time these changes have created a number of confusions, the result of which is a lower compliance rate of incoming reports to the MOH in 1984 and 1985. As a consequence, the figures for those 2 years became distorted and therefore were excluded from this study.

To make an estimate of the total number of hospitalized burn injury cases in a year, the number of admissions within the 2 weeks hospital reporting period was multiplied by 26.

The average age distribution of the Indonesian population from 1980—1983[1] and the average annual number of hospitalized burn injury cases were used to calculate hospital admission rates of the age groups.

* Non Communicable Diseases Research Center, NIHRD, Ministry of Health — Indonesia.

RESULTS

Between 1980—1983 there were on the average 7741 burn injury cases per year, which account for 0.6% of all hospital inpatients. With a ratio of 1.7 : 1, more males than females were admitted in the hospitals. The average case fatality rate was 7.8% per year, with a range of 6.1— 9.6% (Table 1). The standard age group for reporting to the MOH was divided into 7 groups (Table 2). Fifty-nine percent of the cases were between 5 and 44 years old, almost equally distributed among the age group of 5—14, 15—24 and 25—44. Because age group has been standardized for the reports, it was not possible to rearrange this age group for more detailed study. Children under 5 years account for almost 30% of all cases, the majority of them were between 1—4 years. Much fewer cases were found among those of 45 years and above.

There is a tendency that after 1981,

Tabel 1. Hospitalized burn injury cases in Indonesia, 1980 — 1983. Annual number of cases*, proportion of all inpatients, sex ratio and fatality rates.

Year	Total number of cases **	% of all Inpatients	M/F Ratio	Average Fatality Rate (%)
1980	7.436	0.5	1.5	9.0
1981	7.358	0.5	1.7	6.3
1982	8.372	0.7	2.2	6.1
1983	7.800	0.6	1.7	9.6
Average	7.741	0.6	1.7	7.8

* Burn injury indentified as the main cause for hospital admission
** Total number of admissions within 2 weeks/year x 26.

Tabel 2. Hospitalized burn injury cases in Indonesia, 1980 — 1983. by age group and length of stay.

Year	Age Group (%)							Average Length of stay (days)
	< 1	1 - 4	5 - 14	15 - 24	25 - 44	45 - 64	65+	
1980	3.8	26.9	15.7	17.8	25.5	7.7	2.4	14.6
1981	6.4	24.7	18.4	24.0	18.4	7.4	0.7	14.6
1982	4.3	24.5	21.1	20.8	10.2	6.8	3.1	10.3
1983	4.6	21.7	24.3	18.0	21.7	8.0	2.7	11.1
Average	4.7	24.4	19.9	20.0	18.9	7.5	2.2	13.0

the length of stay in the hospital of 14.6 days is decreasing, however the average from 1980 - 1983 was 13 days (table 2).

Comparing the case rates among age groups, it is obvious that the highest rate was found among the age group of 0 -4 years (2.7/100.000 population), then followed by age group 15—24 years. The rate for age group 0—4 years is more than two times the average for all ages which is 1.3/100.000 (table 3).

males was consistant among all age groups.

Thirty percent of all hospitalized patients were under 5 years old. This high proportion became even more evident when age specific rates were calculated. The admission rate for this age group was 2 times higher than the rate for all ages. Compared to other age groups, this age group also has the highest rate. This higher rate could not be well explained at

Tabel 3. Hospitalized burn injury cases in Indonesia, 1980 — 1983

Average age specific hospital burn injury admission rates per year

Age group in years	Average* number of cases/yr	Indonesian Population** x 1000	Rate per 100.000
0 — 4	2253	83737.5	2.7
5 — 14	1540	146651.5	1.0
15 — 24	1548	121485.2	1.3
25 — 44	1463	139785.7	1.0
45 — 64	580	75462.8	0.8
65+	170	18945.0	0.9
Total	7554	586067.7	1.3

* Average anual number of cases was used to calculate number of cases per year.

** Average age specific population for Indonesia, 1980 - 1983 (Bureau of Statistics - Jakarta Indonesia).

DISCUSSION

Interpretation of the data must consider the selection process operating on the patients who were hospitalized. Obviously only those cases with a certain degree of severity were admitted.

There was a male preponderance of 1.7 : 1 among the 7741 cases admitted yearly in the hospital. Further analysis revealed that this preponderance among

this moment. There is a possibility that injury among children at this age will get immediate attention from their parents who will most likely rush them immediately to the hospital. The fact that 40% of the cases were in the productive or working age group of 15—44 years is understandable, because they are more exposed to several sources of hazards in their working environment that can cause burn injuries.

The average length of stay in the

hospital was 13 days. But there was a tendency of a shorter stay after 1981. The length of stay in the hospital can become much longer, if the patient was kept in the hospital to include provision of plastic reconstructive surgery. In general, this facility is only available in big cities such as at the Dr. Ciptomangunkusumo hospital in Jakarta where a lot of patients will stay for about 5 weeks. This lengthy period is the result of the technique currently used which first require complete healing of the lesion before plastic surgery can be introduced.

Although it would be interesting to look into the cause of injury, this information was not available in the hospital reports. A study in 1976 at the surgery department of the Dr. Ciptomangunkusumo hospital in Jakarta[2] showed that 51% of burn injuries were caused by domestic kerosene stove explosions, house fires and flamable liquids. Stove explosions accounts for 32% within this group. The second most prevalent cause was scalds (37%). Personal communication with a number of doctors in two major hospitals in Jakarta gave the impression that scalds among children were very frequent. This could happen inside or outside the house. Inside the house, it is mainly caused by hot water used at home or hot broth from the local meatballs venaor *(tukang baso)* outside the house. Meatball noodle soup is a popular dish especially among children in the city. Some of these vendors use a regular bicycle to peddle around the neighbourhood carrying a container of hot broth. Some of these bicycles do not have additional support for stability when preparing the food, except the regular bicycle stand. Children while waiting for the order play or hang around the bicycle which by a light accidental push can fall. Hot broth carried on the bicycle will spill over and can injure the body of the nearest child. Explosion of kerosene stoves also happened very often. This utility is commonly used at home for cooking. The stoves that usually explode are mainly the cheaper version of home industry products which have low safety measures and not being handled properly when in use. After 1980, for the following 2 years, the fatality rate went down from 9% to 6%, but it went up again to 9.6% in 1983.

The average annual hospital fatality rate is 7.8%. Since this is a average figure for the nation, there must be places where the fatality rate is even higher. Although there are a number of factors that could contribute to the fatal outcome of a burn injury patient, quality of care in the hospital certainly plays an important role. It was not possible in this study to see which age group has the highest fatality rate.

Before adequate preventive measures and specific improvement of medical care can be recomended, it is necessary to do a follow up study to find out the cause of burn injuries and different fatality rates among hospitals. The difference among hospital fatality rate may reflect the difference in quality of care in the hospital.

To have a better understanding of the magnitude of burn injuries in the community, it is recommended that a population based study should be carried out to complement hospital data. Health Center reports should be utilized as a base for the population study.

Specific attention should be given to children under 5 years of age, particularly between 1—4 years, because among all age groups, they have the highest hospital admission rate for burn injuries.

SUMMARY

Using 7 days hospital admission reports from 1980—1983, sent twice a year to the Ministry of Health, an estimate was made of the annual cases/ year with an average case fatality rate of 7.8%. There was a male preponderance over females (1.7 : 1). Special attention should be given to the under five years of age group, because their hospital admission rate was two times higher than the rate of all ages combined. The average length of stay was 13 days. It is recomended to carry out population based studies to compliment hospital data and other studies to analyze the sause of injuries and compare differences among hospital case fatality rates.

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